

## ABSTRACT OF THE DISCLOSURE

A group of bit set and bit clear instructions are provided for a microprocessor to allow atomic modification of privileged architecture control registers. The bit set and bit clear instructions include an opcode that designates to the microprocessor that the instructions are to execute in privileged (kernel) state only, and that the instructions are to communicate with privileged control registers. Two operands are provided for the instructions, the first designating which of the privileged control registers is to be modified, the second designating a general purpose register that contains a bit mask. The bit set instructions set bits in the designated control register according to bits set in the bit mask. The bit clear instructions clear bits in the designated control register according to bits set in the bit mask. By atomically modifying privileged control registers, a requirement for strict nesting of interrupt routines is eliminated.